Colorado Department of Health
Comments on Technical Memorandum/Revised Work Plan
OU7

General Comments

1) Substantial effort is given to site-to-background statistical comparisons for the purposes of selecting Potential Contaminants of Concern (PCOCs) Due to the nature of the OU7 closure, much of this is superfluous The landfill proper will be closed using a presumptive remedy, rendering PCOC selection unnecessary Decisions regarding surface- and ground-water will be based on comparing analyte concentrations to ARARs The leachate seep is a F039 listed hazardous waste and must be managed accordingly The only OU7 areas where decisions will be risk-based, and require PCOCs/COCs for that purpose, are the sediments and soils

2) The data sets used for two of the critical site-to-background comparisons are not appropriate The Division has previously emphasized that use of surficial soils background data from Rock Creek is limited to OUs 1 & 2 The agencies recently granted approval to DOE's *Background Soils Characterization Program Work Plan*, validated data from this effort may be available as early as this fall Additionally, the use of stream sediments as a background against which to compare the East Landfill Pond (ELP) sediments is geologically improper

If a site-to-background statistical comparison of surficial soils and sediments will drive any decisions at OU7, DOE must use approved background data. However, we will not allow continued use of OU1 and OU2 data for all subsequent OUs, particularly now that a surface soil background program has been approved. DOE has also failed to collect representative background for reservoir sediments This has sitewide significance and affects at least OUs 3, 5, 6, and 7

This leaves several options i) wait until suitable background data sets are available, ii) omit the statistical background comparison altogether and proceed with all analytes through the remainder of the COC selection process, or iii) assume that, based on current analyses presented in the TM showing several analytes over draft PRGs, both the East Landfill Pond surface soils and sediments will require action and include them in the presumptive closure design for the landfill We recommend that DOE proceed with options ii) and iii) for the sediments and option i) for the surface soils.

3) Implications of subsurface contamination upgradient of the landfill and both surface/subsurface contamination downgradient of the East Landfill Pond are largely ignored. The text mentions their existence but stops short of envisioning options. If upgradient contamination from another source not characterized in any other investigation has crossed the OU7 boundary, it remains OU7's responsibility to manage any risk from that contamination

Specific Comments

1) Table 2-6 lists the geometric mean for the hydraulic conductivity of "Disturbed Alluvium & Fill Material" (artificial fill) as 4 37 cm/sec. This appears to be missing the corresponding power of ten notation

2) The following three comments relate to ELP surface soils and the larger issue of background.

> All but one of the 17 PCOCs for ELP surface soils failed the hot measurement test (Table 4-13) However, the results of all of the comparisons are not provided. The Appendix M data disk only contains hot measurement test results for groundwater For example, because one data point for americium-241 is 26 6 times larger than the corresponding (Rock Creek) $UTL_{95/95}$, it would be informative to look at the plutonium-239/240 value at the same location. This is not possible without the data.

The $UTL_{95/95}$ values presented in Table 4-14 do not fully agree with the values from Table 3-9 of the *Background Soils Characterization Program Work Plan* (Metals Concentrations in Surface Soils from the Rock Creek Study) Specifically, the values for calcium, magnesium, selenium, sodium, vanadium, and zinc in Table 4-14 are higher than those in the reference document. This brings the validity of the remaining $UTL_{95/95}$ values that were not presented in Table 4-14 into question

Figures 4-17 through 4-27, depicting the extent of surface soil contamination, reference the *Background Geochemical Characterization Report for 1992* The correct version of this report is the final submittal, dated September 1993, and to the Division's knowledge, does not contain surface soil data from 0 to 2 inches. We were unable to verify the $UTL_{95/95}$ values presented on these Figures

This discussion needs to correctly and consistently identify the data sources AND provide ALL relevant data to allow confirmation of the conclusions

3) Section 4 4.2, Bedrock Geologic Materials The Division is reticent to accept the argument that high strontium concentrations (or any other analyte failing the statistical tests) is due to differences in the types of geological materials instead of the presence of contamination This undermines the whole purpose of the background comparison In such a case the analyte should be carried through the remainder of the COC selection process

4) Section 4 7.2, VOC Distribution in Groundwater The "total VOC" approach presented may be helpful to describe the spatial extent of VOCs in groundwater but will have no bearing on remedial decisions for this media.

5) Sections 4 7 3 and 4 7 4 The discussion of the nature and extent of contamination in UHSU/LHSU groundwaters is lacking any mention of metals

6) Table 4-2 Why is the volume of compacted trash for the years 1987-1991 almost triple the volume of all other years?

7) Section 5 4, DQOs for ELP Sediments and Adjacent Soils

The text states that the information required to make a decision includes estimates of the risk to human health and the environment (i e. a "focused" risk assessment), that sources for each item of information have been identified, and that sufficient data have been collected to make decisions about the need for remediation. It goes on to say that the number of surface soil samples collected during the Phase I RFI/RI far exceed the minimum required to support the DQOs Nevertheless, additional samples are recommended.

The Division does not understand why verification samples at locations exceeding the $UTL_{95/95}$ are necessary The Phase I data is validated and fully useable - why repeat the effort? Defining the spatial delineation of hotspots may be needed, but resampling the same locations for verification purposes seems needless.

Are three samples sufficient to adequately characterize the sediment? Most statistical literature considers a sample size of eight to be a minimum.

8) Section 5 5, DQOs for Groundwater and Surface Water· The decision to remediate organics cannot be based on the analysis presented in Section 4 7 The "total VOC" discussion qualitatively describes nature and extent, however, there are no ARARs for total VOCs, and as such, has no basis in remedial decisions

9) Section 5 6, DQOs for the Landfill Conflicting statements exist regarding the disposition of leachate Section 5 6 2 says leachate collection is not required if concentrations do not exceed chemical-specific ARARs, Section 5 6 5 says containment, control, and treatment of leachate is a component of the presumptive remedy The text needs to be changed to reflect a consistent strategy The Division endorses the latter approach

10) Section 6.2, Surface Soils As previously noted, the Division does not support the need for confirmatory sampling Omitting this duplicative step would significantly reduce costs associated with Phase II fieldwork. Delineating the area of soil contamination, to the extent the Phase I data has gaps, is acceptable

11) Section 6 3, Groundwater·

> The Division questions objective (1) for the additional monitoring wells Section 2 presents a strong argument that the groundwater collection and diversion systems on the north side of the landfill have failed Add to this the fact that landfilled waste has extended beyond the intercept system, implying any new system would need to be outside the edge of waste, makes determining the adequacy of the existing system unimportant. The location of these proposed wells is also missing from Figure 6-3
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> The two proposed wells north and south of the ELP are very close (perhaps 250 feet) to existing wells 7187 and B206689, respectively, and are to be screened in the same intervals as the existing wells Will these proposed locations really tell us anything the existing wells cannot?

12) Section 6 4, Landfill Cap Design What is the purpose of collecting 27 samples of the existing soil cover? This will all be under the cap Load bearing capability of this foundation layer is needed but can be determined with fewer samples